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| |  |  |  | | --- | --- | --- | |  |  | **E** | |  |  |  | |  | wordml://75.png | |  | | --- | | **TG/76/9(proj.5)** | | **ORIGINAL:** English | | **DATE:** 2023-03-15 | | | **INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS** | | | |  | Geneva |  | |  | |  |  |  | | --- | --- | --- | |  |  |  | |  | DRAFT |  | |  |  |  | |  | |  |  |  | |  | |  | | --- | |  | | **SWEET PEPPER, HOT PEPPER, PAPRIKA, CHILI** | |  | | |  | | --- | |  | | |  | | --- | | UPOV Code(s): CAPSI\_ANN | | |  | | |  | | |  |  | | --- | --- | | |  | | --- | | *Capsicum annuum* L. | | |  | | |  | | |  | | --- | | \* | | |  |  |  | | |  | | --- | | **GUIDELINES** | |  | | **FOR THE CONDUCT OF TESTS** | |  | | **FOR DISTINCTNESS, UNIFORMITY AND STABILITY** | | | | |  |  |  | | |  | | --- | | *prepared by experts from the Netherlands* | | *to be considered by the* | | |  | | --- | | *Technical Working Party for Vegetables* | | | *at its fifty-seventh session, to be held in Antalya, Türkiye,* | | |  | | --- | | *from 2023-05-01 to 2023-05-05* | | | | | | *Disclaimer: this document does not represent UPOV policies or guidance* | | | | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  | | --- | | Alternative names:\* | | | | | | | |  | | --- | |  | | | | | | | *Botanical name* | *English* | *French* | *German* | *Spanish* | | |  | | --- | | *Capsicum annuum* L. | | |  | | --- | | Sweet Pepper,  Hot Pepper, Paprika, Chili | | |  | | --- | | Piment, Poivron | | |  | | --- | | Paprika | | |  | | --- | | Aji, Chile, Pimiento | | | | | |  |  |  | | 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. |

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| --- | --- | --- |
| 1. | Subject of these Test Guidelines | |
|  |  | |
| 1.1 | |  | | --- | | These Test Guidelines apply to all varieties of Capsicum annuum L. including rootstocks and ornamentals. | | |
|  |  |
| 1.2 | In the case of ornamental and rootstock varieties, in particular, it may be necessary to use additional characteristics or additional states of expression to those included in the Table of Characteristics in order to examine Distinctness, Uniformity and Stability. |
|  |  |
| 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 or plants. | |
|  |  |
| 2.3 | |  | | --- | | The minimum quantity of plant material, to be supplied by the applicant, should be: | |
|  |  |
|  | |  | | --- | | (a)    seed-propagated varieties:                  2,500 seeds  (b)   vegetatively propagated varieties:       25 non grafted young plants not yet bearing flowers and fruits, with at least 2 growing points per plant. For disease resistance testing, additional plants may be requested. | |
|  |  |
|  | In the case of seed, the seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority. |
|  |  |
| 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. | |

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| 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 20 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. | |
|  |  |
| |  | | --- | | 3.4.3 | | |  | | --- | | When resistance characteristics are used for assessing distinctness, uniformity and stability of seed‑propagated varieties, records must be taken under conditions of controlled infection and, unless otherwise specified, on at least 20 plants.  In the case of vegetatively propagated varieties, when resistance characteristics are used for assessing distinctness, uniformity and stability, records must be taken on at least 10 plants. | |
|  |  |
| |  | | --- | |  |   *3.5* | *Additional Tests* |
|  |  |
|  | Additional tests, for examining relevant characteristics, may be established. |

|  |  |
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| 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 10 plants or parts of plants taken from each of 10 plants and any other observations made on all plants in the test, disregarding any off-type plants. | |
|  |  |

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| --- | --- |
| 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 and vegetatively 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 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, hybrids and vegetatively propagated varieties, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 20 plants, 1 off-type is 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 or plant stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied. |

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| 5. | Grouping of Varieties and Organization of the Growing Trial |
|  |  |
| 5.1 | The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness are aided by the use of grouping characteristics. |
|  |  |
| 5.2 | Grouping characteristics are those in which the documented states of expression, even where produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctness; and (b) to organize the growing trial so that similar varieties are grouped together. |
|  |  |
| 5.3 | The following have been agreed as useful grouping characteristics: |
|  | |  |  |  | | --- | --- | --- | |  |  |  | | |  | | --- | | (a) | |  | |  | | --- | | Plant: shortened internodes (characteristic 4) | | | |  | | --- | | (b) | |  | |  | | --- | | Flower: anthocyanin coloration of anther (characteristic 23) | | | |  | | --- | | (c) | |  | |  | | --- | | Immature fruit: color (characteristic 26) | | | |  | | --- | | (d) | |  | |  | | --- | | Fruit: length (characteristic 30) | | | |  | | --- | | (e) | |  | |  | | --- | | Fruit: diameter (characteristic 31) | | | |  | | --- | | (f) | |  | |  | | --- | | Fruit: ratio length/diameter (characteristic 32) | | | |  | | --- | | (g) | |  | |  | | --- | | Fruit: shape in longitudinal section (characteristic 33) | | | |  | | --- | | (h) | |  | |  | | --- | | Fruit: color (characteristic 41) | | | |  | | --- | | (i) | |  | |  | | --- | | Fruit: capsaicin in placenta (characteristic 48) | | | |  | | --- | | (j) | |  | |  | | --- | | Resistance to Tobamovirus - *Tobacco mosaic virus***-** Group 0 (TMV: 0) (characteristic 54) | | |
|  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  | | --- | | (k) | |  | |  | | --- | | Resistance to Tobamovirus - *Pepper mild mottle virus* - Group 2 (PMMoV: 1.2) (characteristic 55) | | | |  | | --- | | (l) | |  | |  | | --- | | Resistance to Tobamovirus - *Pepper mild mottle virus* - Group 3 (PMMoV: 1.2.3) (characteristic 56) | | | |  | | --- | | (m) | |  | |  | | --- | | Resistance to *Potato Y virus* (PVY) - Pathotype 0 (PVY: 0) (characteristic 57) | | | |  | | --- | | (n) | |  | |  | | --- | | Resistance to *Tomato spotted wilt virus* Pathotype 0 (TSWV: 0) (characteristic 62) | | | |  |  | | --- | --- | | |  | | --- | |  | | | | | |
| 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”. |

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| 6. | Introduction to the Table of Characteristics |
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| *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)-(d) | | |  |  | | --- | --- | | |  | | --- | | See Explanations on the Table of Characteristics in Chapter 8.1 | | | | |  |  |  |  | | 7 | |  | | --- | | Not applicable | | | | | |

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

|  |  | English | | français | | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1.** |  | **QL** | **VG** |  |  |  | | | |
|  |  | |  | | --- | | **Seedling: anthocyanin coloration of hypocotyl** | | |  | |  |  |  |  |
|  |  | absent | |  | |  |  | Albaregia | 1 |
|  |  | present | |  | |  |  | Lamuyo | 9 |
| **2.** |  | **QN** | **VG** | **(+)** | **(a)** |  | | | |
|  |  | |  | | --- | | **Plant: habit** | | |  | |  |  |  |  |
|  |  | upright | |  | |  |  | De Cayenne, Doux très long des Landes,  Piquant d’Algérie | 1 |
|  |  | semi-upright | |  | |  |  | Sonar | 2 |
|  |  | prostrate | |  | |  |  |  | 3 |
| **3.** | **(\*)** | **QN** | **MG/MS/VG** | **(+)** | **(a)** |  | | | |
|  |  | |  | | --- | | **Plant: height** | | |  | |  |  |  |  |
|  |  | very short | |  | |  |  |  | 1 |
|  |  | very short to short | |  | |  |  |  | 2 |
|  |  | short | |  | |  |  | Bravia | 3 |
|  |  | short to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | HRF | 5 |
|  |  | medium to tall | |  | |  |  |  | 6 |
|  |  | tall | |  | |  |  | Century | 7 |
|  |  | tall to very tall | |  | |  |  |  | 8 |
|  |  | very tall | |  | |  |  | Brutus | 9 |
| **4.** | **(\*)** | **QL** | **VG** | **(+)** | **(a)** |  | | | |
|  |  | |  | | --- | | **Plant: shortened internodes** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent | |  | |  |  | California wonder,  De Cayenne | 1 |
|  |  | present | |  | |  |  | Bucano | 9 |
| **5.** |  | **PQ** | **MS** | **(+)** | **(a)** |  | | | |
|  |  | |  | | --- | | **Only varieties with plant: shortened internodes: present: number of internodes between the first flower and shortened internodes** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | none | |  | |  |  |  | 1 |
|  |  | one to three | |  | |  |  |  | 2 |
|  |  | more than three | |  | |  |  |  | 3 |
| **6.** |  | **QN** | **MS/VG** | **(+)** | **(a)** |  | | | |
|  |  | |  | | --- | | **Only varieties with plant: shortened internodes: absent: length of internodes** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | very short | |  | |  |  | Albaregia | 1 |
|  |  | short to very short | |  | |  |  |  | 2 |
|  |  | short | |  | |  |  | Tenor | 3 |
|  |  | short to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | Florian | 5 |
|  |  | medium to long | |  | |  |  |  | 6 |
|  |  | long | |  | |  |  | Corno di toro rosso | 7 |
|  |  | long to very long | |  | |  |  |  | 8 |
|  |  | very long | |  | |  |  | Fenice | 9 |
| **7.** |  | **QN** | **MS/VG** | **(+)** | **(a)** |  | | | |
|  |  | |  | | --- | | **Stem: length** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | very short | |  | |  |  |  | 1 |
|  |  | very short to short | |  | |  |  |  | 2 |
|  |  | short | |  | |  |  | Bomenta, Corvinus | 3 |
|  |  | short to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | Bravia, Lamuyo, Nestoss, Remus | 5 |
|  |  | medium to long | |  | |  |  |  | 6 |
|  |  | long | |  | |  |  | Lipari, Marconi | 7 |
|  |  | long to very long | |  | |  |  |  | 8 |
|  |  | very long | |  | |  |  |  | 9 |
| **8.** |  | **QN** | **VG** |  | **(a)** |  | | | |
|  |  | |  | | --- | | **Stem: intensity of anthocyanin coloration of nodes** | | |  | |  |  |  |  |
|  |  | absent or very weak | |  | |  |  | Bravia, Nestoss, Remus | 1 |
|  |  | very weak to weak | |  | |  |  |  | 2 |
|  |  | weak | |  | |  |  | California wonder | 3 |
|  |  | weak to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | Lamuyo, Sonar | 5 |
|  |  | medium to strong | |  | |  |  |  | 6 |
|  |  | strong | |  | |  |  | Piquant d’Algérie | 7 |
|  |  | strong to very strong | |  | |  |  |  | 8 |
|  |  | very strong | |  | |  |  | Smolder | 9 |
| **9.** |  | **QN** | **VG** |  | **(a)** |  | | | |
|  |  | |  | | --- | | **Stem: hairiness of nodes** | | |  | |  |  |  |  |
|  |  | absent or very weak | |  | |  |  | Arlequin | 1 |
|  |  | very weak to weak | |  | |  |  |  | 2 |
|  |  | weak | |  | |  |  | Bravia, Nestoss | 3 |
|  |  | weak to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | Doux très long des Landes, Farnese | 5 |
|  |  | medium to strong | |  | |  |  |  | 6 |
|  |  | strong | |  | |  |  | Fenice, Solario | 7 |
|  |  | strong very strong | |  | |  |  |  | 8 |
|  |  | very strong | |  | |  |  | Brutus | 9 |
| **10.** |  | **QN** | **MS/VG** | **(+)** | **(a)** |  | | | |
|  |  | |  | | --- | | **Leaf blade: length** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | very short | |  | |  |  | Macska sárga | 1 |
|  |  | very short to short | |  | |  |  |  | 2 |
|  |  | short | |  | |  |  | De Cayenne | 3 |
|  |  | short to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | Marconi | 5 |
|  |  | medium to long | |  | |  |  |  | 6 |
|  |  | long | |  | |  |  | Allrounder | 7 |
|  |  | long to very long | |  | |  |  |  | 8 |
|  |  | very long | |  | |  |  | Solario | 9 |
| **11.** |  | **QN** | **MS/VG** | **(+)** | **(a)** |  | | | |
|  |  | |  | | --- | | **Leaf blade: width** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | very narrow | |  | |  |  | Macska sárga | 1 |
|  |  | very narrow to narrow | |  | |  |  |  | 2 |
|  |  | narrow | |  | |  |  | De Cayenne | 3 |
|  |  | narrow to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | Marconi | 5 |
|  |  | medium to broad | |  | |  |  |  | 6 |
|  |  | broad | |  | |  |  | Allrounder | 7 |
|  |  | broad to very broad | |  | |  |  |  | 8 |
|  |  | very broad | |  | |  |  | Solario | 9 |
| **12.** |  | **PQ** | **VG** | **(+)** | **(a)** |  | | | |
|  |  | |  | | --- | | **Leaf blade: ratio length/width** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | low | |  | |  |  | Solario | 1 |
|  |  | medium | |  | |  |  | Balico, Sonar | 2 |
|  |  | high | |  | |  |  | Brutus, De Cayenne | 3 |
| **13.** |  | **QN** | **VG** |  | **(a)** |  | | | |
|  |  | |  | | --- | | **Leaf blade: intensity of green color** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | very light | |  | |  |  |  | 1 |
|  |  | very light to light | |  | |  |  |  | 2 |
|  |  | light | |  | |  |  | Blondy | 3 |
|  |  | light to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | Allrounder, Frazier | 5 |
|  |  | medium to dark | |  | |  |  |  | 6 |
|  |  | dark | |  | |  |  | Rioverde | 7 |
|  |  | dark to very dark | |  | |  |  |  | 8 |
|  |  | very dark | |  | |  |  | Japo,  Morrón de conserva 3, Roial | 9 |
| **14.** |  | **QN** | **VG** | **(+)** | **(a)** |  | | | |
|  |  | |  | | --- | | **Leaf blade: intensity of anthocyanin coloration of upper side** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent or very weak | |  | |  |  |  | 1 |
|  |  | weak | |  | |  |  | Omiyamurasaki ,  Purple Rain | 2 |
|  |  | medium | |  | |  |  | Calico | 3 |
|  |  | strong | |  | |  |  | Black Pearl | 4 |
|  |  | very strong | |  | |  |  | Purple Flash, Takiama Purple to Red, TF802 | 5 |
| **15.** |  | **PQ** | **VG** | **(+)** | **(a)** |  | | | |
|  |  | |  | | --- | | **Leaf blade: distribution of anthocyanin coloration of lower side** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent | |  | |  |  |  | 1 |
|  |  | on veins throughout | |  | |  |  | Takiama Purple to Red | 2 |
|  |  | on veins and diffuse on distal part | |  | |  |  |  | 3 |
|  |  | on veins and diffuse throughout | |  | |  |  | Black Pearl, Purple Flash | 4 |
|  |  | throughout | |  | |  |  | TF802 | 5 |
| **16.** |  | **QL** | **VG** | **(+)** | **(a)** |  | | | |
|  |  | |  | | --- | | **Leaf blade: variegation** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent | |  | |  |  | Omiyamurasaki | 1 |
|  |  | present | |  | |  |  | Calico, Purple Rain | 9 |
| **17.** |  | **QN** | **VG** |  | **(a)** |  | | | |
|  |  | |  | | --- | | **Leaf blade: undulation of margin** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent or very weak | |  | |  |  | De Cayenne | 1 |
|  |  | very weak to weak | |  | |  |  |  | 2 |
|  |  | weak | |  | |  |  | Doux très long des Landes | 3 |
|  |  | weak to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | Tenor | 5 |
|  |  | medium to strong | |  | |  |  |  | 6 |
|  |  | strong | |  | |  |  | Tosca | 7 |
|  |  | strong to very strong | |  | |  |  |  | 8 |
|  |  | very strong | |  | |  |  |  | 9 |
| **18.** |  | **QN** | **VG** |  | **(a)** |  | | | |
|  |  | |  | | --- | | **Leaf blade: blistering** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | very weak | |  | |  |  | Brutus | 1 |
|  |  | very weak to weak | |  | |  |  |  | 2 |
|  |  | weak | |  | |  |  | Pusztagold | 3 |
|  |  | weak to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | Bravia, Nestoss | 5 |
|  |  | medium to strong | |  | |  |  |  | 6 |
|  |  | strong | |  | |  |  | Greygo | 7 |
|  |  | strong to very strong | |  | |  |  |  | 8 |
|  |  | very strong | |  | |  |  | Florian | 9 |
| **19.** |  | **QN** | **VG** |  | **(a)** |  | | | |
|  |  | |  | | --- | | **Leaf blade: glossiness** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | very weak | |  | |  |  |  | 1 |
|  |  | very weak to weak | |  | |  |  |  | 2 |
|  |  | weak | |  | |  |  | Brutus, Doux très long des Landes | 3 |
|  |  | weak to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | Bravia | 5 |
|  |  | medium to strong | |  | |  |  |  | 6 |
|  |  | strong | |  | |  |  | Floridor | 7 |
|  |  | strong to very strong | |  | |  |  |  | 8 |
|  |  | very strong | |  | |  |  |  | 9 |
| **20.** |  | **QN** | **VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Time of beginning of flowering** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | very early | |  | |  |  |  | 1 |
|  |  | very early to early | |  | |  |  |  | 2 |
|  |  | early | |  | |  |  | Brutus | 3 |
|  |  | early to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | Allrounder, Lamuyo | 5 |
|  |  | medium to late | |  | |  |  |  | 6 |
|  |  | late | |  | |  |  | Piquant d’Algérie | 7 |
|  |  | late to very late | |  | |  |  |  | 8 |
|  |  | very late | |  | |  |  |  | 9 |
| **21.** |  | **PQ** | **VG** | **(+)** | **(b)** |  | | | |
|  |  | |  | | --- | | **Flower: attitude of peduncle** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | erect | |  | |  |  | Floridor | 1 |
|  |  | semi-drooping | |  | |  |  | Bravia | 2 |
|  |  | drooping | |  | |  |  | Brutus, Lamuyo | 3 |
| **22.** |  | **PQ** | **VG** |  | **(b)** |  | | | |
|  |  | |  | | --- | | **Flower: color** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | white | |  | |  |  | Lamuyo | 1 |
|  |  | light purple | |  | |  |  |  | 2 |
|  |  | medium purple | |  | |  |  |  | 3 |
|  |  | dark purple | |  | |  |  | Black Pearl | 4 |
| **23.** | **(\*)** | **QL** | **VG** | **(+)** | **(b)** |  | | | |
|  |  | |  | | --- | | **Flower: anthocyanin coloration of anther** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent | |  | |  |  | Bravia | 1 |
|  |  | present | |  | |  |  | Brutus, Lamuyo | 9 |
| **24.** |  | **QL** | **VG** | **(+)** | **(b)** |  | | | |
|  |  | |  | | --- | | **Flower: anthocyanin coloration of filament** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent | |  | |  |  | AG33 | 1 |
|  |  | present | |  | |  |  | Bao-11, Morningput | 9 |
| **25.** |  | **QN** | **VS** | **(+)** | **(b)** |  | | | |
|  |  | |  | | --- | | **Male sterility** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent | |  | |  |  | California wonder | 1 |
|  |  | partially present | |  | |  |  |  | 2 |
|  |  | totally present | |  | |  |  | Angelito | 3 |
| **26.** | **(\*)** | **PQ** | **VG** | **(+)** | **(c)** |  | | | |
|  |  | |  | | --- | | **Immature fruit: color** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | greenish white | |  | |  |  | Bravia | 1 |
|  |  | greenish yellow | |  | |  |  | Don, Sweet banana | 2 |
|  |  | green | |  | |  |  | Allrounder, Black Bullet, Cornus, Hitman, Impala, Syrto | 3 |
|  |  | purple | |  | |  |  | Cardinal, Lilo, Loco, Tequila, Tonaya | 4 |
| **27.** | **(\*)** | **QN** | **VG** |  | **(c)** |  | | | |
|  |  | |  | | --- | | **Only varieties with immature fruit green or purple: intensity of color** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | very light | |  | |  |  |  | 1 |
|  |  | very light to light | |  | |  |  |  | 2 |
|  |  | light | |  | |  |  | Cornus, Loco, Syrto | 3 |
|  |  | light to medium | |  | |  |  | Tequila | 4 |
|  |  | medium | |  | |  |  | Allrounder | 5 |
|  |  | medium to dark | |  | |  |  | Cardinal | 6 |
|  |  | dark | |  | |  |  | Impala, Lilo, Tonaya | 7 |
|  |  | dark to very dark | |  | |  |  |  | 8 |
|  |  | very dark | |  | |  |  | Black Bullet, Hitman | 9 |
| **28.** |  | **QN** | **VG** |  | **(c)** |  | | | |
|  |  | |  | | --- | | **Excluding varieties with immature fruit color: purple: Immature fruit: anthocyanin coloration** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent or weak | |  | |  |  | Lamuyo | 1 |
|  |  | medium | |  | |  |  |  | 2 |
|  |  | strong | |  | |  |  | Sweet banana | 3 |
| **29.** |  | **PQ** | **VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Fruit: attitude** | | |  | |  |  |  |  |
|  |  | erect | |  | |  |  | Pusztagold | 1 |
|  |  | horizontal | |  | |  |  | PAZ szentesi | 2 |
|  |  | drooping | |  | |  |  | De Cayenne, Lamuyo | 3 |
| **30.** | **(\*)** | **QN** | **MS/VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Fruit: length** | | |  | |  |  |  |  |
|  |  | very short | |  | |  |  | Cherry Bomb, PAZ szentesi | 1 |
|  |  | very short to short | |  | |  |  |  | 2 |
|  |  | short | |  | |  |  | Ophelia, Smolder | 3 |
|  |  | short to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | California wonder | 5 |
|  |  | medium to long | |  | |  |  |  | 6 |
|  |  | long | |  | |  |  | Bravia, De Cayenne | 7 |
|  |  | long to very long | |  | |  |  |  | 8 |
|  |  | very long | |  | |  |  | Carboni,  Corno di toro rosso,  Doux très long des Landes | 9 |
| **31.** | **(\*)** | **QN** | **MS/VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Fruit: diameter** | | |  | |  |  |  |  |
|  |  | very small | |  | |  |  | De Cayenne | 1 |
|  |  | very small to small | |  | |  |  |  | 2 |
|  |  | small | |  | |  |  | Cherry Bomb | 3 |
|  |  | small to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | Doux italien | 5 |
|  |  | medium to large | |  | |  |  |  | 6 |
|  |  | large | |  | |  |  | Lamuyo, Maduro | 7 |
|  |  | large to very large | |  | |  |  |  | 8 |
|  |  | very large | |  | |  |  | Floridor, Ibleor | 9 |
| **32.** | **(\*)** | **QN** | **MS/VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Fruit: ratio length/diameter** | | |  | |  |  |  |  |
|  |  | very low | |  | |  |  | Liebesapfel, PAZ szentesi | 1 |
|  |  | very low to low | |  | |  |  |  | 2 |
|  |  | low | |  | |  |  | Bucano | 3 |
|  |  | low to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | Maduro | 5 |
|  |  | medium to high | |  | |  |  |  | 6 |
|  |  | high | |  | |  |  | Lamuyo, Vidi | 7 |
|  |  | high to very high | |  | |  |  |  | 8 |
|  |  | very high | |  | |  |  | De Cayenne, Doux très long des Landes | 9 |
| **33.** | **(\*)** | **PQ** | **VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Fruit: shape in longitudinal section** | | |  | |  |  |  |  |
|  |  | triangular | |  | |  |  | Bravia,  Corno di toro rosso,  De Cayenne | 1 |
|  |  | ovate | |  | |  |  | Jalapeño | 2 |
|  |  | cordate | |  | |  |  | Morrón de conserva 3 | 3 |
|  |  | elliptic | |  | |  |  |  | 4 |
|  |  | circular | |  | |  |  | Capperino | 5 |
|  |  | oblate | |  | |  |  | Koral | 6 |
|  |  | rectangular | |  | |  |  | Raggio | 7 |
|  |  | square | |  | |  |  | Maranello | 8 |
|  |  | transverse rectangular | |  | |  |  | Liebesapfel, PAZ szentesi | 9 |
|  |  | trapezoid | |  | |  |  | Altea | 10 |
| **34.** |  | **PQ** | **VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Fruit: curvature** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent | |  | |  |  | Kappy, Lamuyo | 1 |
|  |  | C-shaped | |  | |  |  | Sweet banana | 2 |
|  |  | S-shaped | |  | |  |  | Doux italien | 3 |
| **35.** |  | **QN** | **VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Fruit: twisting** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent or weak | |  | |  |  | California wonder | 1 |
|  |  | medium | |  | |  |  | Bubión | 2 |
|  |  | strong | |  | |  |  | BN8707 | 3 |
| **36.** |  | **PQ** | **VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Fruit: shape in cross section** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | elliptic | |  | |  |  | Sweet banana | 1 |
|  |  | angular | |  | |  |  | Solario | 2 |
|  |  | circular | |  | |  |  | Doux très long des Landes | 3 |
| **37.** |  | **QN** | **VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Fruit: sinuation of pericarp at basal part** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent or very weak | |  | |  |  | Smolder | 1 |
|  |  | very weak to weak | |  | |  |  |  | 2 |
|  |  | weak | |  | |  |  | Donat, Kappy | 3 |
|  |  | weak to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | Banán | 5 |
|  |  | medium to strong | |  | |  |  |  | 6 |
|  |  | strong | |  | |  |  | Hawker | 7 |
|  |  | strong to very strong | |  | |  |  |  | 8 |
|  |  | very strong | |  | |  |  | Doux italien, Gelber Spiral | 9 |
| **38.** | **(\*)** | **QN** | **VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Fruit: sinuation of pericarp excluding basal part** | | |  | |  |  |  |  |
|  |  | absent or weak | |  | |  |  | Sonar, Yolo Wonder | 1 |
|  |  | medium | |  | |  |  | Rodri | 2 |
|  |  | strong | |  | |  |  | De Cayenne, Doux italien | 3 |
| **39.** | **(\*)** | **PQ** | **VG** |  | **(d)** |  | | | |
|  |  | |  | | --- | | **Fruit: shape of apex** | | |  | |  |  |  |  |
|  |  | strongly acute | |  | |  |  | De Cayenne | 1 |
|  |  | moderately acute | |  | |  |  | Kappone | 2 |
|  |  | rounded | |  | |  |  | Red Tinkerbell | 3 |
|  |  | moderately depressed | |  | |  |  | Maduro | 4 |
|  |  | strongly depressed | |  | |  |  | Monte | 5 |
| **40.** |  | **QN** | **VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Fruit: texture of surface** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | smooth or very slightly wrinkled | |  | |  |  | Smolder | 1 |
|  |  | slightly wrinkled | |  | |  |  |  | 2 |
|  |  | strongly wrinkled | |  | |  |  |  | 3 |
| **41.** | **(\*)** | **PQ** | **VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Fruit: color** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | yellow | |  | |  |  | Allrounder | 1 |
|  |  | orange | |  | |  |  | Arancia | 2 |
|  |  | red | |  | |  |  | Lamuyo | 3 |
|  |  | brown | |  | |  |  | Bastan, Chocolony | 4 |
|  |  | green | |  | |  |  | Raymond | 5 |
| **42.** | **(\*)** | **QN** | **VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Fruit: intensity of color** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | very light | |  | |  |  |  | 1 |
|  |  | very light to light | |  | |  |  |  | 2 |
|  |  | light | |  | |  |  |  | 3 |
|  |  | light to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  |  | 5 |
|  |  | medium to dark | |  | |  |  |  | 6 |
|  |  | dark | |  | |  |  |  | 7 |
|  |  | dark to very dark | |  | |  |  |  | 8 |
|  |  | very dark | |  | |  |  |  | 9 |
| **43.** |  | **QN** | **VG** |  | **(d)** |  | | | |
|  |  | |  | | --- | | **Fruit: glossiness** | | |  | |  |  |  |  |
|  |  | very weak | |  | |  |  |  | 1 |
|  |  | very weak to weak | |  | |  |  |  | 2 |
|  |  | weak | |  | |  |  | Macska sárga | 3 |
|  |  | weak to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | Sonar | 5 |
|  |  | medium to strong | |  | |  |  |  | 6 |
|  |  | strong | |  | |  |  | Doux italien | 7 |
|  |  | strong to very strong | |  | |  |  |  | 8 |
|  |  | very strong | |  | |  |  | Ocelot | 9 |
| **44.** | **(\*)** | **QN** | **VG** |  | **(d)** |  | | | |
|  |  | |  | | --- | | **Fruit: depth of peduncle cavity** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent or very shallow | |  | |  |  | Sweet banana | 1 |
|  |  | very shallow to shallow | |  | |  |  |  | 2 |
|  |  | shallow | |  | |  |  | Doux italien | 3 |
|  |  | shallow to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | Lamuyo, Maduro | 5 |
|  |  | medium to deep | |  | |  |  |  | 6 |
|  |  | deep | |  | |  |  | Baquero | 7 |
|  |  | deep to very deep | |  | |  |  |  | 8 |
|  |  | very deep | |  | |  |  | Dumbo34 | 9 |
| **45.** |  | **QN** | **VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Fruit: depth of interloculary grooves** | | |  | |  |  |  |  |
|  |  | absent or very shallow | |  | |  |  | De Cayenne | 1 |
|  |  | very shallow to shallow | |  | |  |  |  | 2 |
|  |  | shallow | |  | |  |  | Kappone | 3 |
|  |  | shallow to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | Lamuyo, Marconi | 5 |
|  |  | medium to deep | |  | |  |  |  | 6 |
|  |  | deep | |  | |  |  | Round of Hungary | 7 |
|  |  | deep to very deep | |  | |  |  |  | 8 |
|  |  | very deep | |  | |  |  |  | 9 |
| **46.** | **(\*)** | **QN** | **MG/VG** |  | **(d)** |  | | | |
|  |  | |  | | --- | | **Fruit: number of locules** | | |  | |  |  |  |  |
|  |  | predominantly two | |  | |  |  | De Cayenne | 1 |
|  |  | equally two and three | |  | |  |  | Banán | 2 |
|  |  | predominantly three | |  | |  |  | Century | 3 |
|  |  | equally three and four | |  | |  |  | Lamuyo, Sonar | 4 |
|  |  | predominantly four | |  | |  |  | PAZ szentesi | 5 |
| **47.** | **(\*)** | **QN** | **VG** |  | **(d)** |  | | | |
|  |  | |  | | --- | | **Fruit: thickness of flesh** | | |  | |  |  |  |  |
|  |  | very thin | |  | |  |  | De Cayenne, Macska sárga | 1 |
|  |  | very thin to thin | |  | |  |  |  | 2 |
|  |  | thin | |  | |  |  | Banán, Doux très long des Landes | 3 |
|  |  | thin to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | Lamuyo | 5 |
|  |  | medium to thick | |  | |  |  |  | 6 |
|  |  | thick | |  | |  |  | Deimos | 7 |
|  |  | thick to very thick | |  | |  |  |  | 8 |
|  |  | very thick | |  | |  |  | Solario | 9 |
| **48.** | **(\*)** | **QL** | **VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Fruit: capsaicin in placenta** | | |  | |  |  |  |  |
|  |  | absent | |  | |  |  | Sonar, Sweet banana | 1 |
|  |  | present | |  | |  |  | De Cayenne | 9 |
| **49.** |  | **QL** | **VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Fruit: seeds** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent | |  | |  |  | Angelito | 1 |
|  |  | present | |  | |  |  | Lamuyo | 9 |
| **50.** |  | **QN** | **MS/VG** |  | **(d)** |  | | | |
|  |  | |  | | --- | | **Peduncle: length** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | very short | |  | |  |  | Jablina | 1 |
|  |  | very short to short | |  | |  |  |  | 2 |
|  |  | short | |  | |  |  | Corvinus, Yolo Wonder | 3 |
|  |  | short to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | Sonar | 5 |
|  |  | medium to long | |  | |  |  |  | 6 |
|  |  | long | |  | |  |  | De Cayenne | 7 |
|  |  | long to very long | |  | |  |  |  | 8 |
|  |  | very long | |  | |  |  | Farnese, Lipari | 9 |
| **51.** |  | **QN** | **MS/VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Peduncle: thickness** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | very thin | |  | |  |  | De Cayenne, Doux très long des Landes,  Macska sárga | 1 |
|  |  | very thin to thin | |  | |  |  |  | 2 |
|  |  | thin | |  | |  |  | Sweet banana | 3 |
|  |  | thin to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | Doux italien | 5 |
|  |  | medium to thick | |  | |  |  |  | 6 |
|  |  | thick | |  | |  |  | Lamuyo | 7 |
|  |  | thick to very thick | |  | |  |  |  | 8 |
|  |  | very thick | |  | |  |  |  | 9 |
| **52.** |  | **QN** | **VG** | **(+)** | **(d)** |  | | | |
|  |  | |  | | --- | | **Calyx: aspect** | | |  | |  |  |  |  |
|  |  | non enveloping | |  | |  |  | Lamuyo, Sonar | 1 |
|  |  | semi enveloping | |  | |  |  |  | 2 |
|  |  | enveloping | |  | |  |  | De Cayenne,  Sweet banana | 3 |
| **53.** | **(\*)** | **QN** | **VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Time of maturity** | | |  | |  |  |  |  |
|  |  | very early | |  | |  |  | Macska sárga, Madison | 1 |
|  |  | early | |  | |  |  | Kosmik | 3 |
|  |  | early to medium | |  | |  |  |  | 4 |
|  |  | medium | |  | |  |  | Lamuyo, Sonar | 5 |
|  |  | medium to late | |  | |  |  |  | 6 |
|  |  | late | |  | |  |  | Doux d’Espagne | 7 |
|  |  | late to very late | |  | |  |  |  | 8 |
|  |  | very late | |  | |  |  | Teseo | 9 |
| **54.** |  | **QL** | **VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Resistance to Tobamovirus - *Tobacco mosaic virus* - Group 0 (TMV: 0)** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent | |  | |  |  | Lamu, Pepita, Piquillo | 1 |
|  |  | present | |  | |  |  | Fehérözön, Ultron,  Yolo Wonder | 9 |
| **55.** |  | **QL** | **VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Resistance to Tobamovirus - *Pepper mild mottle virus* - Group 2 (PMMoV: 1.2)** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent | |  | |  |  | Fehérözön, Lamu,  Yolo Wonder | 1 |
|  |  | present | |  | |  |  | Achille, Candela, Ferrari, Fudji, Novi 3 | 9 |
| **56.** |  | **QL** | **VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Resistance to Tobamovirus - *Pepper mild mottle virus* - Group 3 (PMMoV: 1.2.3)** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent | |  | |  |  | Candela, Ferrari, Oida, Yolo Wonder | 1 |
|  |  | present | |  | |  |  | Ettore, Friendly, Tom4 | 9 |
| **57.** |  | **QL** | **VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Resistance to *Potato Y virus* (PVY) - Pathotype 0 (PVY: 0)** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent | |  | |  |  | Ferrari, Murillo, Piquillo, Yolo Wonder | 1 |
|  |  | present | |  | |  |  | Andalus, Goleador, Vidi, Yolo Y | 9 |
| **58.** |  | **QL** | **VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Resistance to *Potato Y virus* (PVY) - Pathotype 1 (PVY: 1)** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent | |  | |  |  | Yolo Wonder, Yolo Y | 1 |
|  |  | present | |  | |  |  | Florida VR2, Ribatejo | 9 |
| **59.** |  | **QL** | **VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Resistance to *Potato Y virus* (PVY) - Pathotype 1.2 (PVY: 1.2)** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent | |  | |  |  | Florida VR2,  Yolo Wonder, Yolo Y | 1 |
|  |  | present | |  | |  |  | Chouca, Serrano Criollo de Morelos 334 | 9 |
| **60.** |  | **QL** | **VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Resistance to *Phytophthora capsici* (Pc)** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent | |  | |  |  | Yolo Wonder | 1 |
|  |  | present | |  | |  |  | Chistera, Favolor,  Phyo 636, Solario | 9 |
| **61.** |  | **QL** | **VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Resistance to *Cucumber mosaic virus*(CMV)** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent | |  | |  |  | Yolo Wonder | 1 |
|  |  | present | |  | |  |  | Alby, Ducato, Favolor | 9 |
| **62.** |  | **QL** | **VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Resistance to *Tomato spotted wilt virus* Pathotype 0 (TSWV: 0)** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent | |  | |  |  | Yolo Wonder | 1 |
|  |  | present | |  | |  |  | Galileo, Jackal, Jackpot, Piamonte | 9 |
| **63.** |  | **QL** | **VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Resistance to *Xanthomonas* spp (ex *Xanthomonas campestris* pv. *vesicatoria*)  (X spp (ex Xcv)) - Pathotype 1** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent | |  | |  |  | Yolo Wonder | 1 |
|  |  | present | |  | |  |  | Filidor, San Marco | 9 |
| **64.** |  | **QL** | **VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Resistance to *Xanthomonas* spp (ex *Xanthomonas campestris* pv. *vesicatoria*)  (X spp (ex Xcv)) - Pathotype 2** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent | |  | |  |  | Yolo Wonder | 1 |
|  |  | present | |  | |  |  | Filidor, San Marco | 9 |
| **65.** |  | **QL** | **VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Resistance to *Xanthomonas* spp (ex *Xanthomonas campestris* pv. *vesicatoria*)  (X spp (ex Xcv)) - Pathotype 3** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent | |  | |  |  | Yolo Wonder | 1 |
|  |  | present | |  | |  |  | Filidor, San Marco | 9 |
| **66.** |  | **QL** | **MS/VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Resistance to *Meloidogyne incognita*(Mi)** | | | |  | | --- | |  | | | |  | | --- | |  | | |  | | --- | |  | |  |  |
|  |  | absent | |  | |  |  | Tom4, Yolo Wonder | 1 |
|  |  | present | |  | |  |  | Bastion, Capital, Kation, W4 | 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) | | |  | | --- | | Observations on plant, stem, internodes and leaves should be made at the time of the first color change of the fruit. Furthermore observations on stem and leaves should be made at the middle third of the plant and observations on leaves should be made on fully developed leaves. | | | | |  |  |  |  | | |  | | --- | | (b) | | |  | | --- | | Observations should be made at the middle third of the plant on fresh fully open flowers. | | | | |  |  |  |  | | |  | | --- | | (c) | | |  | | --- | | Observations should be made before the first color change of the fruit. | | | | |  |  |  |  | | |  | | --- | | (d) | | |  | | --- | | Observations should be made at maturity, after the time of the color change. | | | | |  |  |  |  | |
| |  |  | | --- | --- | |  | | | |  | | --- | | *8.2* | | *Explanations for individual characteristics* | |  | | | |  | | --- | | Ad. 2: Plant: habit  Observations only to be made when plants do not have prominent influence of pruning, guiding or stakes on their natural habit. | | | | |  | | --- | | Ad. 3: Plant: height  Observations should be made after a fruit set on several nodes.  Poor fruit set may influence the vigor and thus the height of the plant. | | | |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | Ad. 4: Plant: shortened internodes  Observations should be made on plants which have not been pruned, in the upper part. The shoot system of pepper consists of main stems developing from the main axis, and side shoots which develop from the nodes on the main axis and on the main stems.  Absent:  The main stems grow indeterminately; one or two flowers develop per node and shortened internodes never develop.  Present: After the first branching of the main axis, shorter internodes appear and the growth of the main stem ends in a bunch of flowers.   |  | | --- | | Explanation of plant partswordml://76.png |      |  |  | | --- | --- | | wordml://77.pngwordml://78.png | wordml://79.pngwordml://80.png | | 1 | 9 | | absent | present | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Ad. 5: Only varieties with plant: shortened internodes: present: number of internodes between the first flower and shortened internodes  Observations should be made on plants which have not been pruned, in the upper part, after the first branching of the main axis, to where the shorter internodes appear and the main stem ends in a bunch of flowers.     |  |  |  |  | | --- | --- | --- | --- | | wordml://81.png | wordml://82.png | wordml://83.png | wordml://84.png | | 1 | 2 | 3 |  | | none | one to three | more than 3 | explanation of plant parts | | | | |  | | --- | | Ad. 6: Only varieties with plant: shortened internodes: absent: length of internodes  Observations should be made on plants which have not been pruned, in the upper part after the first branching of the main axis, on primary side shoots.  wordml://85.png   wordml://86.png | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | |  | | --- | | Ad. 7: Stem: length  Observations should be made from the cotyledons to the node of the first flower branch.  wordml://87.png | | | |  | | --- | | Ad. 10: Leaf blade: length  wordml://88.png | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  |  | | --- | --- | | |  | | --- | | Ad. 11: Leaf blade: width  See Ad.10 | | | |  | | --- | | Ad. 12: Leaf blade: ratio length/width  See Ad. 10 | | | |  | | --- | | Ad. 14: Leaf blade: intensity of anthocyanin coloration of upper side  Observations should be made on leaves when they are just fully developed. | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Ad. 15: Leaf blade: distribution of anthocyanin coloration of lower side  See Ad. 14 for time of observation.     |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  | | --- | --- | --- | --- | | wordml://89.png | wordml://90.png | wordml://91.png | wordml://92.png | | 2 | 3 | 4 | 5 | | on veins throughout | on veins and diffuse on distal part | on veins and diffuse throughout | throughout | | | | |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Ad. 16: Leaf blade: variegation     |  |  |  |  | | --- | --- | --- | --- | | |  | | --- | | wordml://93.png | | 9 | | present | | | | | |  | | --- | | Ad. 20: Time of beginning of flowering  Time of beginning of flowering is reached when 50% of the plants have the first open flower of the second flowering node. | | | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Ad. 21: Flower: attitude of peduncle  The predominant state of expression should be scored.     |  |  |  | | --- | --- | --- | | wordml://94.png | wordml://95.png | wordml://96.png | | 1 | 2 | 3 | | erect | semi-drooping | drooping | | | |

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| |  |  | | --- | --- | | |  | | --- | | Ad. 23: Flower: anthocyanin coloration of anther  Observations should be made on the part of the stamen that normally produces pollen, i.e. the anther.  wordml://97.png | | | |  | | --- | | Ad. 24: Flower: anthocyanin coloration of filament  See Ad. 23  Observations should be made on the stalk of the stamen, i.e. the filament. | | |

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| |  |  | | --- | --- | | |  | | --- | | Ad. 30: Fruit: length  Observations should be made excluding the peduncle.  The length of the fruit for curved or s-shaped fruits should be observed following the C- shape or S-shape.  The length of the fruit with peduncle cavity or/and depressed apex should be observed without taking into account the cavity and depressed apex.  wordml://100.pngwordml://101.png | | | |  | | --- | | Ad. 31: Fruit: diameter  Observations should be made at the broadest part of the fruit. | | |

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| |  |  | | --- | --- | | |  | | --- | | Ad. 32: Fruit: ratio length/diameter  Observations should be made by comparing the ratio of the fruit with the illustrations for the ratios of shapes in the table.  wordml://102.png | | |

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| |  |  | | --- | --- | | |  | | --- | | Ad. 33: Fruit: shape in longitudinal section  wordml://103.png | | |
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| |  |  | | --- | --- | | |  | | --- | | Ad. 37: Fruit: sinuation of pericarp at basal part    wordml://110.png | | | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Ad. 38: Fruit: sinuation of pericarp excluding basal part     |  |  |  | | --- | --- | --- | | wordml://111.png | wordml://112.png | wordml://113.png | | 1 | 2 | 3 | | absent or weak | medium | strong | | | |

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| |  |  | | --- | --- | | |  | | --- | | Ad. 45: Fruit: depth of interloculary grooves  Observations should be made on the middle third of the fruit. | | | |  | | --- | | Ad. 48: Fruit: capsaicin in placenta  Observations should be made by tasting the placenta. The placenta is the tissue to which the seeds are attached to.  wordml://117.png | | |

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ISF site Feb. 2020: <http://www.worldseed.org/isf/differential_hosts.html>) |      |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | **Pepper Tobamovirus Group** | 0 | 1 | 2 | 3 | |  | **ISF Code →** | TMV: 0,1,2  ToMV: 0,1,2  BPMoV | TMGMV  PaMMV | PMMoV: 1.2 | PMMoV: 1.2.3 | | **Differential hosts** | **Gene** |  |  |  |  | | Lamu,  Early Calwonder | - | S | S | S | S | | Tisana, Yolo Wonder | *L1* | HR | S | S | S | | Tabasco | *L2* | HR | HR | S | S | | Solario F1, Novi 3, PI159236 | *L3* | HR | HR | HR | S | | Tom4, PI260429 | *L4* | HR | HR | HR | HR |   S = susceptible; HR = highly resistant;  TMV= *Tobacco mosaic virus*; ToMV= *Tomato mosaic virus*;  PMMoV= *Pepper mild mottle virus;* TMGMV= *Tobacco mild green mosaic virus*;  BPMoV= *Bell pepper mottle virus*; PaMMV= *Paprika mild mottle virus*   |  |  |  | | --- | --- | --- | | 7. | Establishment pathogenicity | Test on susceptible plants | | 8. | Multiplication inoculum |  | | 8.1 | Multiplication medium | Regeneration of the virus of plant material before inoculum preparation. | | 8.2 | Multiplication variety | On susceptible pepper variety, Tobamovirus groups may be multiplied on varieties which are selective for each particular group. For TMV, because tomato and tobacco *Nicotiana tabacum* cv.Samsun have large leaves and can produce a lot of inoculum, they are recommended for the multiplication of TMV: 0. | | 8.3 | Plant stage at inoculation | see 10.3 | | 8.4 | Inoculation medium | see 10.1 | | 8.5 | Inoculation method | see 10.4 | | 8.6 | Harvest of inoculum | Symptomatic fresh leaves | | 8.7 | Check of harvested inoculum | option: on young leaves of *Nicotiana tabacum* “Xanthi”, check for local lesions after 5-7 days at 20-25°C. | | 8.8 | Shelf life/viability inoculum | fresh > 1 day in fridge, desiccated > 1 year in fridge, or juice > 1 year in freezer at - 20°C. | | 9. | Format of the test |  | | 9.1 | Number of plants per genotype | At least 20 plants | | 9.2 | Number of replicates | - | | 9.3 | Control varieties | TMV: 0:   * Susceptible controls: Lamu, Pepita, Piquillo * Resistant controls: Fehérözön, Yolo Wonder   PMMoV: 1.2:   * Susceptible controls: Fehérözön, Lamu, Yolo Wonder * Resistant controls: Ferrari, Novi 3   PMMoV: 1.2.3:   * Susceptible controls: Ferrari, Yolo Wonder * Resistant controls: Friendly, Tom 4   For PMMoV: 1.2.3, it is advised to choose Ferrari as susceptible control because it is resistant to PMMoV: 1.2 or to add the differentials in tests to confirm the group. | | 9.4 | Test design | add non-inoculated plants | | 9.5 | Test facility | Climate room or greenhouse | | 9.6 | Temperature | 20-25°C | | 9.7 | Light | 12 hours or longer | | 9.8 | Season | - | | 9.9 | Special measures | - | | 10. | Inoculation |  | | 10.1 | Preparation inoculum | 1 g leaf with symptoms with 10 mL PBS or similar buffer or dilution of juice in water.  Homogenize, add carborundum to buffer | | 10.2 | Quantification inoculum | - | | 10.3 | Plant stage at inoculation | TMV: 0, cotyledons to first leaf stage  PMMoV: 1.2 and PMMoV: 1.2.3, cotyledon stage | | 10.4 | Inoculation method | rubbing with the virus suspension | | 10.5 | First observation | TMV:0:  4-7 days post-inoculation for observation of local necrosis.  PMMoV: 1.2 and PMMoV: 1.2.3:  4-7 days post-inoculation for observation of local necrotic lesions which can lead to cotyledon drop. After this date these necrosis can hardly be seen on fallen cotyledons | | 10.6 | Second observation | TMV: 0:  two weeks post-inoculation for observation of symptoms of susceptibility.  PMMoV: 1.2 and PMMoV: 1.2.3:  two weeks post-inoculation for observation of symptoms of susceptibility. | | 10.7 | Final observations | TMV: 0:  three weeks post-inoculation.  PMMoV: 1.2 and PMMoV: 1.2.3:  three weeks post-inoculation.  For TMV:0, PMMoV: 1.2 and PMMoV: 1.2.3, two of these three observations may be sufficient; the third notation is optional for observation of evolution of symptoms (depending on symptoms on controls or heterogeneous behaviour) | | 11. | Observations |  | | 11.1 | Method | Visual | | 11.2 | Observation scale | TMV: 0:   * Susceptibility: mosaic (Aucuba in case of Aucuba strain as Vi-6), growth reduction, death of plants. * Resistance: local necrotic lesions which can lead to leave drop, systemic necrosis, vein necrosis, stem necrosis.   PMMoV: 1.2 and PMMoV: 1.2.3:   * Susceptibility: mosaic (green), growth reduction. * Resistance: local necrotic lesions which can lead to cotyledon drop, systemic necrosis | | 11.3 | Validation of test | Evaluation of variety resistance should be calibrated with results of resistant and susceptible controls | | 11.4 | Off-types | - | | 12. | Interpretation of data in terms of UPOV characteristic states | absent [1] susceptible, see 11.2  present [9] resistant, see 11.2 | | 13. | Critical control points | - For TMV: 0, plants with no symptoms at all have to be interpreted as escapes of inoculation.  - Recommended dates of notation should be adapted depending of expression of symptoms on controls.  - Environmental conditions can have an effect on the expression of symptoms over time. In this case a third notation could be necessary. | | | |
| |  |  | | --- | --- | | |  | | --- | | Ad. 55: Resistance to Tobamovirus - *Pepper mild mottle virus* - Group 2 (PMMoV: 1.2)  See Ad. 54 | | | |  | | --- | | Ad. 56: Resistance to Tobamovirus - *Pepper mild mottle virus* - Group 3 (PMMoV: 1.2.3)  See Ad. 54 | | |

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ISF site: nov. 2020:  [Differential Hosts – International Seed Federation (worldseed.org)](https://www.worldseed.org/our-work/plant-health/differential-hosts/)) |  |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Differential Host** | **gene present** | PVY: 0 | PVY: 1 | PVY: 1.2 | | Early Cal Wonder, Yolo Wonder | *pvr 0* | S | S | S | | PI152225 | *pvr 1* | HR | HR | - | | Yolo Y | *pvr11 (pvr 21)* | HR | S | S | | Florida VR2 | *pvr12 (pvr 22)* | HR | HR | S | | Florida VR4, Del Rey Bell, Agronomico 10 | *pvr3* | HR | HR | HR | | Serrano Criollo de Morelos 334 | *pvr4* | HR | HR | HR |   S= susceptible; HR= highly resistant  Note: In some scientific publications pvr 21 is referred to as pvr 11. Similarly, pvr 22 is referred to as pvr 12 .   |  |  |  | | --- | --- | --- | | 7. | Establishment pathogenicity | Test on susceptible plants | | 8. | Multiplication inoculum |  | | 8.1 | Multiplication medium | Regeneration of the virus on plant material before inoculum preparation | | 8.2 | Multiplication variety | On susceptible pepper variety, PVY races may be multiplied on varieties which are selective for each particular race.  For PVY: 0, because tobacco *Nicotiana tabacum* cv. *Xanthi-nc* has large leaves and can produce a lot of inoculum and has a faster multiplication, it is recommended for the multiplication. | | 8.3 | Plant stage at inoculation | see 10.3 | | 8.4 | Inoculation medium | see 10.1 | | 8.5 | Inoculation method | see 10.4 | | 8.6 | Harvest of inoculum | Symptomatic fresh leaves | | 8.7 | Check of harvested inoculum | Option: on *Nicotiana tabacum* cv. *Xanthi-nc,* check mosaic presence and local lesion absence (contamination by Tobamovirus) after 5-7 days. | | 8.8 | Shelf life/viability inoculum | fresh > 1 day, desiccated > 1 year.  Because problem of stability of PVY: 0, shipments are recommended to be done with fresh infected leaves | | 9. | Format of the test |  | | 9.1 | Number of plants per genotype | At least 20 plants | | 9.2 | Number of replicates | - | | 9.3 | Control varieties | PVY: 0:   * Susceptible controls: Ferrari, Piquillo,Yolo Wonder * Resistant controls: Andalus, Vidi, Yolo Y   PVV: 1:   * Susceptible controls: Yolo Wonder, Yolo Y * Resistant controls: Florida VR2   PVY: 1.2:   * Susceptible controls: Florida VR2, Yolo Wonder, Yolo Y * Resistant controls: Serrano Criollo de Morelos | | 9.4 | Test design | add non inoculated plants | | 9.5 | Test facility | Climate room or greenhouse. In case of test in greenhouse during period of low daylight, shadowy area should not be used | | 9.6 | Temperature | 18-25°C | | 9.7 | Light | 12 hours or longer | | 9.8 | Season | - | | 9.9 | Special measures | For PVY: 0, it is advised to choose Yolo Y as resistant control or to add the differentials in tests to be able to observe a possible contamination by PVY: 1 or 1.2 | | 10. | Inoculation |  | | 10.1 | Preparation inoculum | 1 g leaf with symptoms with 4 mL PBS with carborundum (80mg) and activated carbon (80mg) or similar buffer, homogenize | | 10.2 | Quantification inoculum | - | | 10.3 | Plant stage at inoculation | PVY: 0: cotyledons stage  PVY: 1 and 1.2: cotyledons stage or first pointing leaf stage | | 10.4 | Inoculation method | rubbing with the virus suspension | | 10.5 | Final observations | Three weeks post-inoculation | | 11. | Observations |  | | 11.1 | Method | Visual | | 11.2 | Observation scale | Susceptibility: mosaic (can be very light/faint), growth reduction, vein banding and vein necrosis.  Resistance: no symptoms | | 11.3 | Validation of test | Evaluation of variety resistance should be calibrated with results of resistant and susceptible controls. | | 11.4 | Off-types | - | | 12. | Interpretation of data in terms of UPOV characteristic states | absent [1] susceptible, see 11.2  present [9] resistant, see 11.2 | | 13. | Critical control points | Recommended dates of notation should be adapted depending of expression of symptoms on controls. | | | |
| |  |  | | --- | --- | | |  | | --- | | Ad. 58: Resistance to *Potato Y virus* (PVY) - Pathotype 1 (PVY: 1)  See Ad. 57 | | | |  | | --- | | Ad. 59: Resistance to *Potato Y virus* (PVY) - Pathotype 1.2 (PVY: 1.2)  See Ad. 57 | | |

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for repeated measurements, the stem is marked with permanent ink | | 11.2 | Observation scale |  | |  | - susceptible | e.g. length increase > 0.8 cm/week | |  | - moderately resistant | e.g. length increase  ≥ 0.5 cm ≤ 0.8 cm/week | |  | - highly resistant | e.g. length increase  < 0.5 cm/week | | 11.3 | Validation of test | Evaluation of variety resistance should be based on the stem necrosis increase compared to the control varieties. | | 11.4 | Off-types | maximum 1 on 20 plants | | 12. | Interpretation of data in terms of UPOV characteristic states | Absent…… [1] susceptible  Present……[9] moderately resistant and higly resistant | | 13. | Critical control points | - Absence of differential interactions between host and pathogen  - Maintenance of viability of the strains in the collection | | | |

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| | 7. | Establishment pathogenicity | Test on susceptible plant or *Nicotiana benthamiana, N. rustica* | | 8. | Multiplication inoculum |  | | 8.1 | Multiplication medium | living plant | | 8.2 | Multiplication variety | Yolo Wonder or *N. benthamiana*, *N. rustica* | | 8.3 | Plant stage at inoculation | Cotyledons fully developed or at “first leaf” pointed stage or 1- 3 leaves | | 8.4 | Inoculation medium | Ice-cold buffer suspension or 0.03 M PBS + optional addition of 0.1% sodium sulfite freshly added | | 8.5 | Inoculation method | Rubbing with carborundum | | 8.6 | Harvest of inoculum | - | | 8.7 | Check of harvested inoculum | - | | 8.8 | Shelf life/viability inoculum | Stability in ice cold suspension ca. 15-20 minutes | | 9. | Format of the test |  | | 9.1 | Number of plants per genotype | At least 20 | | 9.2 | Number of replicates | e.g. 1 | | 9.3 | Control varieties | Lamuyo, Yolo Wonder (susceptible),  Galileo, Jackal, Jackpot, Prior (resistant) | | 9.4 | Test design | - | | 9.5 | Test facility | Growth chamber or insect proof glasshouse | | 9.6 | Temperature | 18-20°C or 20-22°C | | 9.7 | Light | 12h | | 9.8 | Season | All seasons, but winter reduces the risk of thrips infestation | | 9.9 | Special measures | Biohazard sign on compartment for countries with a TSWV quarantine status | | 10. | Inoculation |  | | 10.1 | Preparation inoculum | - | | 10.2 | Quantification inoculum | - | | 10.3 | Plant stage at inoculation | Cotyledons fully developed /at “first leaf” pointed stage or 1-3 leaves | | 10.4 | Inoculation method | Rubbing with carborundum, then apply shading or darkness for 24h  Option:  repeat the inoculation 2-3 days later to reduce accidental escapes | | 10.5 | First observation | 5-6 days to10 - 15 days post inoculation | | 10.6 | Second observation | 10-11 days post inoculation to 15 - 21 days post inoculation | | 10.7 | Final observations | 21 days post inoculation | | 11. | Observations |  | | 11.1 | Method | Visual, comparative | | 11.2 | Observation scale |  | |  |  | Susceptibility: mosaic on young leaf, some leaf malformation | |  |  | Resistance: necrosis or only mechanical damage | | 11.3 | Validation of test | Evaluation of variety resistance should be calibrated with results of resistant and susceptible controls. | | 11.4 | Off-types | maximum 1 on 20 plants | | 12. | Interpretation of data in terms of UPOV characteristic states | absent [1] susceptible, see 11.2  present [9] resistant, see 11.2 | | 13. | Critical control points | - Monitor and control the presence of thrips. TSWV is transmitted by thrips (*Thrips tabaci* and *Frankliniella occidentalis*.). TSWV has a broad host range.  - After a few multiplication the virus could be ineffective. New isolates can be obtained from practice by harvesting fruits of L4 pepper varieties infected naturally with TSWV. The fruits are kept at -70°C temperature. The presence of other viruses must be checked before using this material. | | | |

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to be taken from any source of infection in the field | | 5. | Isolate | Expected reactions on resistant standard varieties | | 6. | Establishment isolate identity | on differentials |      |  |  |  |  | | --- | --- | --- | --- | | Differential | Pathotype 1 | Pathotype 2 | Pathotype 3 | | Early California Wonder | S | S | S | | Early California Wonder-10R (gene Bs1) | S | R | S | | Early California Wonder-20R (gene Bs2) | R | R | R | | Early California Wonder-30R (gene Bs3) | R | S | S | | PI 235047 (gene Bs4) | R | S | R |      |  |  |  | | --- | --- | --- | | 7. | Establishment pathogenicity | - | | 8. | Multiplication inoculum |  | | 8.1 | Multiplication medium | A bacterial growth medium, e.g. LPGA | | 8.2 | Multiplication variety | - | | 8.3 | Plant stage at inoculation | - | | 8.4 | Inoculation medium | - | | 8.5 | Inoculation method | - | | 8.6 | Harvest of inoculum | 48h culture | | 8.7 | Check of harvested inoculum | - | | 8.8 | Shelflife/viability inoculum | - | | 9. | Format of the test |  | | 9.1 | Number of plants per genotype | at least 20 | | 9.2 | Number of replicates | e.g. 1 | | 9.3 | Control varieties | Fehérözön, Yolo Wonder (susceptible),  Emiro, Filidor, Gotico, San Marco, Solanor (resistant) | | 9.4 | Test design | - | | 9.5 | Test facility | - | | 9.6 | Temperature | 20-26°C day/night | | 9.7 | Light | 30.000 lux suggested, 16h/day | | 9.8 | Season | - | | 9.9 | Special measures | 80% RH | | 10. | Inoculation |  | | 10.1 | Preparation inoculum | Harvest cells from LPGA plate after 48 h growing | | 10.2 | Quantification inoculum | 107 -108 cells per ml (Stronger reaction with the higher concentration.) | | 10.3 | Plant stage at inoculation | 6-8 true leaves | | 10.4 | Inoculation method | Infiltration into abaxial surface of the interveinal region on either side of the midrib of a fully expanded leaf in 13-20mm diameter spots | | 10.5 | First observation | 2-5 days post inoculation | | 10.6 | Second observation | 6-8 days post inoculation | | 10.7 | Final observations | 10-14 days post inoculation | | 11. | Observations |  | | 11.1 | Method | Visual, comparative | | 11.2 | Observation scale |  | |  |  | Susceptibility: Water soaking near infiltration site | |  |  | Resistance; Necrotic reaction at infiltration site | | 11.3 | Validation of test | Evaluation of variety resistance should be calibrated with results of resistant and susceptible controls. | | 11.4 | Off-types | maximum 1 on 20 plants | | 12. | Interpretation of data in terms of UPOV characteristic states | absent [1] susceptible, see 11.2  present [9] resistant, see 11.2 | | 13. | Critical control points | - | | | |

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| |  |  | | --- | --- | | |  | | --- | | Ad. 64: Resistance to *Xanthomonas* spp (ex *Xanthomonas campestris* pv. *vesicatoria*)  (X spp (ex Xcv)) - Pathotype 2  See Ad. 63 | | | |  | | --- | | Ad. 65: Resistance to *Xanthomonas* spp (ex *Xanthomonas campestris* pv. *vesicatoria*)  (X spp (ex Xcv)) - Pathotype 3  See Ad. 63 | | |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Ad. 66: Resistance to *Meloidogyne incognita*(Mi)   |  |  |  | | --- | --- | --- | | 1. | Pathogen | *Meloidogyne incognita* (Mi) | | 2. | Quarantine status | - | | 3. | Host species | Sweet pepper, hot pepper, paprika and chili – *Capsicum annuum* L. | | 4. | Source of inoculum | GEVES[[9]](#footnote-9) (F) | | 5. | Isolate | non-resistance breaking | | 6. | Establishment isolate identity | use pepper standards | | 7. | Establishment pathogenicity | use pepper standards | | 8. | Multiplication inoculum |  | | 8.1 | Multiplication medium | living plant of pepper or tomato | | 8.2 | Multiplication variety | susceptible variety | | 8.3 | Plant stage at inoculation | 2 leaves stage | | 8.5 | Inoculation method | Deposit of piece of contaminated roots in soil (around 5-10g per plant, to adapt depending of the population aggressivity) | | 8.6 | Harvest of inoculum | 6 to 10 weeks after inoculation, root systems are cut with scissors into pieces of about 1 cm length | | 8.7 | Check of harvested inoculum | visual check for presence of root knots and ripe egg masses | | 8.8 | Shelflife/viability inoculum | 1 day | | 9. | Format of the test |  | | 9.1 | Number of plants per genotype | 30 plants, plus at least 10 non-inoculated plants to observe if a possible lack of germination is due to nematode or not. It is recommended to sow more seeds to be sure to get enough plants. | | 9.2 | Number of replicates | At least 2, preferably 3 . | | 9.3 | Control varieties | Susceptible: Tom 4 and Yolo Wonder (as additional susceptible control for reduced susceptibility, indicating the border between S and R)  Resistant: Capital and W4 | | 9.4 | Test design | 3 replicates of 10 plants per variety, in separate trays with contaminated substrate (70% soil +30% sand) to allow statistical analysis. 10 plants in a separate tray with NON contaminated substrate. | | 9.5 | Test facility | greenhouse or climate room | | 9.6 | Temperature | 20-26°C, the temperature must be adapted depending on the aggressivity of the test to obtain expected response of controls but should not be above 26°C. | | 9.7 | Light | at least 12 h per day | | 10.1 | Preparation inoculum | Small pieces of diseased roots mixed with soil | | 10.2 | Quantification inoculum | The ratio is depending of aggressiveness of test and laboratories conditions (e.g. between 15g to 30g of infested roots, for 40 plants in a tray of 30\*30 cm containing approximately 3.5 kg of substrate,), galls should be mixed homogeneously with the soil. | | 10.3 | Plant stage at inoculation | seed | | 10.4 | Inoculation method | Seeds sown in soil contaminated with infested roots homogeneously mixed with soil | | 10.5 | First observation | - | | 10.6 | Second observation | - | | 10.7 | Final observations | Around 45 days after inoculation depending on test conditions (temperature, season) | | 11. | Observations |  | | 11.1 | Method | root inspection | | 11.2 | Observation scale | Class 0: healthy plant, no galls  Class 1: few and little galls which are difficult to find (for example less than 5)  Class 2: few galls, easy to observe but on few roots, still a lot of roots without galls, no chains  Class 3: many individual galls on most but not all roots, presence of chains  Class 4: many galls on all roots, can lead to dead plants and may suppress emergence. | | 11.3 | Validation of test | Evaluation of variety resistance should be calibrated with results of resistant and susceptible controls. | | 11.4 | Off-types | resistant varieties may have a few plants with a few galls | | 12. | Interpretation of data in terms of UPOV characteristic states | Variety very similar to resistant control is judged as resistant:  Variety very similar to susceptible controls is judged as susceptible: Resistance is absent (1);  If significantly different from resistant and susceptible controls (notations are between resistant and susceptible controls), the variety is judged as resistant; Yolo Wonder is the border control variety for susceptibility. Varieties with higher resistance than Yolo wonder are judged as resistant: Resistance is present (9);  If results are not clear, statistical analysis is advised.    *The analysis of raw data of the couple Mi / Pepper is planned in the Pathostat tool ( free statistic analysis dedicated to quantitative disease resistances)* [*https://pathostat.geves.fr*](https://pathostat.geves.fr/) | | 13. | Critical control points | Avoid rotting of roots; high temperature causes breakdown of resistance.  In case of an aggressive test, put seeds in a layer of non-contaminated soil or decrease the quantity of inoculum.  In class 4 heavy gall development is seldom observed, normally it can occur as loss of seedlings.  If germination of non-inoculated seeds is 100%, non-germinated inoculated seeds are expected to be in class 4. If germination of non-inoculated seeds is less than 100%, equal lower germination percentage can be expected concerning the inoculated seeds. | | | |
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| |  |  | | --- | --- | | 10. | Technical Questionnaire | |
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| |  |  | | --- | --- | |  | 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 | |  | | --- | | *Capsicum annuum* L. | | |  | | --- | |  | | |  |  |  |  |  | |  | |  | | --- | | 1.2 | | Common name | |  | | --- | | Sweet Pepper, Hot Pepper, Paprika, Chili | |  | |  |  |  | |  | | --- | |  | |  | |  |  |  |  |  | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | | 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 | |  |  | |  |  |  |  |  | |

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| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 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) | [ ] | |  |  | | |  |  | | | | | | |

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| |  |  |  | | --- | --- | --- | |  |  |  | |  | 4.2 | Method of propagating the variety | |  | |  |  |  | | --- | --- | --- | | |  | | --- | | 4.2.1 | | |  | | --- | | Seed-propagated varieties | |  | | |  | | --- | | (a) | | |  | | --- | | Self-pollination | | [ ] | | |  | | --- | | (b) | | |  | | --- | | Cross-pollination | | [ ] | | |  | | --- | | (c) | | |  | | --- | | Hybrid | | [ ] | | |  | | --- | | (d) | | |  | | --- | | Other (please provide details) | | [ ] | |  |  |  | |  |  |  | |  |  |  | | |  | | --- | | 4.2.2 | | Other (Please provide details) | [ ] | |  |  |  | |  |  |  | |  |  |  | | | |  | |  |  | | --- | --- | | |  | | --- | |  | | | | |

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| |  |  |  |  | | --- | --- | --- | --- | | 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 |
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| |  | | --- | | **5.1** |  |  | | --- | | **(3)** | | |  | | --- | | **Plant: height** | |  |  |
|  | |  | | --- | | very short | | |  | | --- | |  | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | very short to short | | |  | | --- | |  | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | short | | |  | | --- | | Bravia | | |  | | --- | | 3 [   ] | |
|  | |  | | --- | | short to medium | | |  | | --- | |  | | |  | | --- | | 4 [   ] | |
|  | |  | | --- | | medium | | |  | | --- | | HRF | | |  | | --- | | 5 [   ] | |
|  | |  | | --- | | medium to tall | | |  | | --- | |  | | |  | | --- | | 6 [   ] | |
|  | |  | | --- | | tall | | |  | | --- | | Century | | |  | | --- | | 7 [   ] | |
|  | |  | | --- | | tall to very tall | | |  | | --- | |  | | |  | | --- | | 8 [   ] | |
|  | |  | | --- | | very tall | | |  | | --- | | Brutus | | |  | | --- | | 9 [   ] | |
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| |  | | --- | | **5.2** |  |  | | --- | | **(4)** | | |  | | --- | | **Plant: shortened internodes** | |  |  |
|  | |  | | --- | | absent | | |  | | --- | | California wonder, De Cayenne | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | present | | |  | | --- | | Bucano | | |  | | --- | | 9 [   ] | |
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|  |  |  |  |
| |  | | --- | | **5.3** |  |  | | --- | | **(14)** | | |  | | --- | | **Leaf blade: intensity of anthocyanin coloration of upper side** | |  |  |
|  | |  | | --- | | absent or very weak | | |  | | --- | |  | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | weak | | |  | | --- | | Omiyamurasaki, Purple Rain | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | medium | | |  | | --- | | Calico | | |  | | --- | | 3 [   ] | |
|  | |  | | --- | | strong | | |  | | --- | | Black Pearl | | |  | | --- | | 4 [   ] | |
|  | |  | | --- | | very strong | | |  | | --- | | Purple Flash, Takiama Purple to Red, TF802 | | |  | | --- | | 5 [   ] | |
|  |  |  |  |
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| |  | | --- | | **5.4** |  |  | | --- | | **(15)** | | |  | | --- | | **Leaf blade: distribution of anthocyanin coloration of lower side** | |  |  |
|  | |  | | --- | | absent | | |  | | --- | |  | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | on veins throughout | | |  | | --- | | Takiama Purple to Red | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | on veins and diffuse on distal part | | |  | | --- | |  | | |  | | --- | | 3 [   ] | |
|  | |  | | --- | | on veins and diffuse throughout | | |  | | --- | | Black Pearl, Purple Flash | | |  | | --- | | 4 [   ] | |
|  | |  | | --- | | throughout | | |  | | --- | | TF802 | | |  | | --- | | 5 [   ] | |
|  |  |  |  |
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| |  | | --- | | **5.5** |  |  | | --- | | **(16)** | | |  | | --- | | **Leaf blade: variegation** | |  |  |
|  | |  | | --- | | absent | | |  | | --- | | Omiyamurasaki | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | present | | |  | | --- | | Calico, Purple Rain | | |  | | --- | | 9 [   ] | |
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| |  | | --- | | **5.6** |  |  | | --- | | **(23)** | | |  | | --- | | **Flower: anthocyanin coloration of anther** | |  |  |
|  | |  | | --- | | absent | | |  | | --- | | Bravia | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | present | | |  | | --- | | Brutus, Lamuyo | | |  | | --- | | 9 [   ] | |
|  |  |  |  |
|  |  |  |  |
| |  | | --- | | **5.7** |  |  | | --- | | **(25)** | | |  | | --- | | **Male sterility** | |  |  |
|  | |  | | --- | | absent | | |  | | --- | | California wonder | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | partially present | | |  | | --- | |  | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | totally present | | |  | | --- | | Angelito | | |  | | --- | | 3 [   ] | |
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| |  | | --- | | **5.8** |  |  | | --- | | **(26)** | | |  | | --- | | **Immature fruit: color** | |  |  |
|  | |  | | --- | | greenish white | | |  | | --- | | Bravia | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | greenish yellow | | |  | | --- | | Don, Sweet banana | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | green | | |  | | --- | | Allrounder, Black Bullet, Cornus, Hitman, Impala, Syrto | | |  | | --- | | 3 [   ] | |
|  | |  | | --- | | purple | | |  | | --- | | Cardinal, Lilo, Loco, Tequila, Tonaya | | |  | | --- | | 4 [   ] | |
|  |  |  |  |
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| |  | | --- | | **5.9** |  |  | | --- | | **(27)** | | |  | | --- | | **Only varieties with immature fruit green or purple: intensity of color** | |  |  |
|  | |  | | --- | | very light | | |  | | --- | |  | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | very light to light | | |  | | --- | |  | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | light | | |  | | --- | | Cornus, Loco, Syrto | | |  | | --- | | 3 [   ] | |
|  | |  | | --- | | light to medium | | |  | | --- | | Tequila | | |  | | --- | | 4 [   ] | |
|  | |  | | --- | | medium | | |  | | --- | | Allrounder | | |  | | --- | | 5 [   ] | |
|  | |  | | --- | | medium to dark | | |  | | --- | | Cardinal | | |  | | --- | | 6 [   ] | |
|  | |  | | --- | | dark | | |  | | --- | | Impala, Lilo, Tonaya | | |  | | --- | | 7 [   ] | |
|  | |  | | --- | | dark to very dark | | |  | | --- | |  | | |  | | --- | | 8 [   ] | |
|  | |  | | --- | | very dark | | |  | | --- | | Black Bullet, Hitman | | |  | | --- | | 9 [   ] | |
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| |  | | --- | | **5.10** |  |  | | --- | | **(30)** | | |  | | --- | | **Fruit: length** | |  |  |
|  | |  | | --- | | very short | | |  | | --- | | Cherry Bomb, PAZ szentesi | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | very short to short | | |  | | --- | |  | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | short | | |  | | --- | | Ophelia, Smolder | | |  | | --- | | 3 [   ] | |
|  | |  | | --- | | short to medium | | |  | | --- | |  | | |  | | --- | | 4 [   ] | |
|  | |  | | --- | | medium | | |  | | --- | | California wonder | | |  | | --- | | 5 [   ] | |
|  | |  | | --- | | medium to long | | |  | | --- | |  | | |  | | --- | | 6 [   ] | |
|  | |  | | --- | | long | | |  | | --- | | Bravia, De Cayenne | | |  | | --- | | 7 [   ] | |
|  | |  | | --- | | long to very long | | |  | | --- | |  | | |  | | --- | | 8 [   ] | |
|  | |  | | --- | | very long | | |  | | --- | | Carboni, Corno di toro rosso, Doux très long des Landes | | |  | | --- | | 9 [   ] | |
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| |  | | --- | | **5.11** |  |  | | --- | | **(31)** | | |  | | --- | | **Fruit: diameter** | |  |  |
|  | |  | | --- | | very small | | |  | | --- | | De Cayenne | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | very small to small | | |  | | --- | |  | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | small | | |  | | --- | | Cherry Bomb | | |  | | --- | | 3 [   ] | |
|  | |  | | --- | | small to medium | | |  | | --- | |  | | |  | | --- | | 4 [   ] | |
|  | |  | | --- | | medium | | |  | | --- | | Doux italien | | |  | | --- | | 5 [   ] | |
|  | |  | | --- | | medium to large | | |  | | --- | |  | | |  | | --- | | 6 [   ] | |
|  | |  | | --- | | large | | |  | | --- | | Lamuyo, Maduro | | |  | | --- | | 7 [   ] | |
|  | |  | | --- | | large to very large | | |  | | --- | |  | | |  | | --- | | 8 [   ] | |
|  | |  | | --- | | very large | | |  | | --- | | Floridor, Ibleor | | |  | | --- | | 9 [   ] | |
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| |  | | --- | | **5.12** |  |  | | --- | | **(32)** | | |  | | --- | | **Fruit: ratio length/diameter** | |  |  |
|  | |  | | --- | | very low | | |  | | --- | | Liebesapfel, PAZ szentesi | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | very low to low | | |  | | --- | |  | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | low | | |  | | --- | | Bucano | | |  | | --- | | 3 [   ] | |
|  | |  | | --- | | low to medium | | |  | | --- | |  | | |  | | --- | | 4 [   ] | |
|  | |  | | --- | | medium | | |  | | --- | | Maduro | | |  | | --- | | 5 [   ] | |
|  | |  | | --- | | medium to high | | |  | | --- | |  | | |  | | --- | | 6 [   ] | |
|  | |  | | --- | | high | | |  | | --- | | Lamuyo, Vidi | | |  | | --- | | 7 [   ] | |
|  | |  | | --- | | high to very high | | |  | | --- | |  | | |  | | --- | | 8 [   ] | |
|  | |  | | --- | | very high | | |  | | --- | | De Cayenne, Doux très long des Landes | | |  | | --- | | 9 [   ] | |
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| |  | | --- | | **5.13** |  |  | | --- | | **(33)** | | |  | | --- | | **Fruit: shape in longitudinal section** | |  |  |
|  | |  | | --- | | triangular | | |  | | --- | | Bravia, Corno di toro rosso, De Cayenne | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | ovate | | |  | | --- | | Jalapeño | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | cordate | | |  | | --- | | Morrón de conserva 3 | | |  | | --- | | 3 [   ] | |
|  | |  | | --- | | elliptic | | |  | | --- | |  | | |  | | --- | | 4 [   ] | |
|  | |  | | --- | | circular | | |  | | --- | | Capperino | | |  | | --- | | 5 [   ] | |
|  | |  | | --- | | oblate | | |  | | --- | | Koral | | |  | | --- | | 6 [   ] | |
|  | |  | | --- | | rectangular | | |  | | --- | | Raggio | | |  | | --- | | 7 [   ] | |
|  | |  | | --- | | square | | |  | | --- | | Maranello | | |  | | --- | | 8 [   ] | |
|  | |  | | --- | | transverse rectangular | | |  | | --- | | Liebesapfel, PAZ szentesi | | |  | | --- | | 9 [   ] | |
|  | |  | | --- | | trapezoid | | |  | | --- | | Altea | | |  | | --- | | 10 [   ] | |
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| |  | | --- | | **5.14** |  |  | | --- | | **(37)** | | |  | | --- | | **Fruit: sinuation of pericarp at basal part** | |  |  |
|  | |  | | --- | | absent or very weak | | |  | | --- | | Smolder | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | very weak to weak | | |  | | --- | |  | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | weak | | |  | | --- | | Donat, Kappy | | |  | | --- | | 3 [   ] | |
|  | |  | | --- | | weak to medium | | |  | | --- | |  | | |  | | --- | | 4 [   ] | |
|  | |  | | --- | | medium | | |  | | --- | | Banán | | |  | | --- | | 5 [   ] | |
|  | |  | | --- | | medium to strong | | |  | | --- | |  | | |  | | --- | | 6 [   ] | |
|  | |  | | --- | | strong | | |  | | --- | | Hawker | | |  | | --- | | 7 [   ] | |
|  | |  | | --- | | strong to very strong | | |  | | --- | |  | | |  | | --- | | 8 [   ] | |
|  | |  | | --- | | very strong | | |  | | --- | | Doux italien, Gelber Spiral | | |  | | --- | | 9 [   ] | |
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| |  | | --- | | **5.15** |  |  | | --- | | **(38)** | | |  | | --- | | **Fruit: sinuation of pericarp excluding basal part** | |  |  |
|  | |  | | --- | | absent or weak | | |  | | --- | | Sonar, Yolo Wonder | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | medium | | |  | | --- | | Rodri | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | strong | | |  | | --- | | De Cayenne, Doux italien | | |  | | --- | | 3 [   ] | |
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| |  | | --- | | **5.16** |  |  | | --- | | **(41)** | | |  | | --- | | **Fruit: color** | |  |  |
|  | |  | | --- | | yellow | | |  | | --- | | Allrounder | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | orange | | |  | | --- | | Arancia | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | red | | |  | | --- | | Lamuyo | | |  | | --- | | 3 [   ] | |
|  | |  | | --- | | brown | | |  | | --- | | Bastan, Chocolony | | |  | | --- | | 4 [   ] | |
|  | |  | | --- | | green | | |  | | --- | | Raymond | | |  | | --- | | 5 [   ] | |
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| |  | | --- | | **5.17** |  |  | | --- | | **(42)** | | |  | | --- | | **Fruit: intensity of color** | |  |  |
|  | |  | | --- | | very light | | |  | | --- | |  | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | very light to light | | |  | | --- | |  | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | light | | |  | | --- | |  | | |  | | --- | | 3 [   ] | |
|  | |  | | --- | | light to medium | | |  | | --- | |  | | |  | | --- | | 4 [   ] | |
|  | |  | | --- | | medium | | |  | | --- | |  | | |  | | --- | | 5 [   ] | |
|  | |  | | --- | | medium to dark | | |  | | --- | |  | | |  | | --- | | 6 [   ] | |
|  | |  | | --- | | dark | | |  | | --- | |  | | |  | | --- | | 7 [   ] | |
|  | |  | | --- | | dark to very dark | | |  | | --- | |  | | |  | | --- | | 8 [   ] | |
|  | |  | | --- | | very dark | | |  | | --- | |  | | |  | | --- | | 9 [   ] | |
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| |  | | --- | | **5.18** |  |  | | --- | | **(44)** | | |  | | --- | | **Fruit: depth of peduncle cavity** | |  |  |
|  | |  | | --- | | absent or very shallow | | |  | | --- | | Sweet banana | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | very shallow to shallow | | |  | | --- | |  | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | shallow | | |  | | --- | | Doux italien | | |  | | --- | | 3 [   ] | |
|  | |  | | --- | | shallow to medium | | |  | | --- | |  | | |  | | --- | | 4 [   ] | |
|  | |  | | --- | | medium | | |  | | --- | | Lamuyo, Maduro | | |  | | --- | | 5 [   ] | |
|  | |  | | --- | | medium to deep | | |  | | --- | |  | | |  | | --- | | 6 [   ] | |
|  | |  | | --- | | deep | | |  | | --- | | Baquero | | |  | | --- | | 7 [   ] | |
|  | |  | | --- | | deep to very deep | | |  | | --- | |  | | |  | | --- | | 8 [   ] | |
|  | |  | | --- | | very deep | | |  | | --- | | Dumbo34 | | |  | | --- | | 9 [   ] | |
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|  |  |  |  |
| |  | | --- | | **5.19** |  |  | | --- | | **(46)** | | |  | | --- | | **Fruit: number of locules** | |  |  |
|  | |  | | --- | | predominantly two | | |  | | --- | | De Cayenne | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | equally two and three | | |  | | --- | | Banán | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | predominantly three | | |  | | --- | | Century | | |  | | --- | | 3 [   ] | |
|  | |  | | --- | | equally three and four | | |  | | --- | | Lamuyo, Sonar | | |  | | --- | | 4 [   ] | |
|  | |  | | --- | | predominantly four | | |  | | --- | | PAZ szentesi | | |  | | --- | | 5 [   ] | |
|  |  |  |  |
|  |  |  |  |
| |  | | --- | | **5.20** |  |  | | --- | | **(48)** | | |  | | --- | | **Fruit: capsaicin in placenta** | |  |  |
|  | |  | | --- | | absent | | |  | | --- | | Sonar, Sweet banana | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | present | | |  | | --- | | De Cayenne | | |  | | --- | | 9 [   ] | |
|  |  |  |  |
|  |  |  |  |
| |  | | --- | | **5.21** |  |  | | --- | | **(49)** | | |  | | --- | | **Fruit: seeds** | |  |  |
|  | |  | | --- | | absent | | |  | | --- | | Angelito | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | present | | |  | | --- | | Lamuyo | | |  | | --- | | 9 [   ] | |
|  |  |  |  |
|  |  |  |  |
| |  | | --- | | **5.22** |  |  | | --- | | **(53)** | | |  | | --- | | **Time of maturity** | |  |  |
|  | |  | | --- | | very early | | |  | | --- | | Macska sárga, Madison | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | early | | |  | | --- | | Kosmik | | |  | | --- | | 3 [   ] | |
|  | |  | | --- | | early to medium | | |  | | --- | |  | | |  | | --- | | 4 [   ] | |
|  | |  | | --- | | medium | | |  | | --- | | Lamuyo, Sonar | | |  | | --- | | 5 [   ] | |
|  | |  | | --- | | medium to late | | |  | | --- | |  | | |  | | --- | | 6 [   ] | |
|  | |  | | --- | | late | | |  | | --- | | Doux d’Espagne | | |  | | --- | | 7 [   ] | |
|  | |  | | --- | | late to very late | | |  | | --- | |  | | |  | | --- | | 8 [   ] | |
|  | |  | | --- | | very late | | |  | | --- | | Teseo | | |  | | --- | | 9 [   ] | |
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| |  | | --- | | **5.23** |  |  | | --- | | **(54)** | | |  | | --- | | **Resistance to Tobamovirus - *Tobacco mosaic virus* - Group 0 (TMV: 0)** | |  |  |
|  | |  | | --- | | absent | | |  | | --- | | Lamu, Pepita, Piquillo | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | present | | |  | | --- | | Fehérözön, Ultron, Yolo Wonder | | |  | | --- | | 9 [   ] | |
|  |  |  |  |
|  |  |  |  |
| |  | | --- | | **5.24** |  |  | | --- | | **(55)** | | |  | | --- | | **Resistance to Tobamovirus - *Pepper mild mottle virus* - Group 2 (PMMoV: 1.2)** | |  |  |
|  | |  | | --- | | absent | | |  | | --- | | Fehérözön, Lamu, Yolo Wonder | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | present | | |  | | --- | | Achille, Candela, Ferrari, Fudji, Novi 3 | | |  | | --- | | 9 [   ] | |
|  |  |  |  |
|  |  |  |  |
| |  | | --- | | **5.25** |  |  | | --- | | **(56)** | | |  | | --- | | **Resistance to Tobamovirus - *Pepper mild mottle virus* - Group 3 (PMMoV: 1.2.3)** | |  |  |
|  | |  | | --- | | absent | | |  | | --- | | Candela, Ferrari, Oida, Yolo Wonder | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | present | | |  | | --- | | Ettore, Friendly, Tom4 | | |  | | --- | | 9 [   ] | |
|  |  |  |  |
|  |  |  |  |
| |  | | --- | | **5.26** |  |  | | --- | | **(57)** | | |  | | --- | | **Resistance to *Potato Y virus* (PVY) - Pathotype 0 (PVY: 0)** | |  |  |
|  | |  | | --- | | absent | | |  | | --- | | Ferrari, Murillo, Piquillo, Yolo Wonder | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | present | | |  | | --- | | Andalus, Goleador, Vidi, Yolo Y | | |  | | --- | | 9 [   ] | |
|  |  |  |  |
|  |  |  |  |
| |  | | --- | | **5.27** |  |  | | --- | | **(58)** | | |  | | --- | | **Resistance to *Potato Y virus* (PVY) - Pathotype 1 (PVY: 1)** | |  |  |
|  | |  | | --- | | absent | | |  | | --- | | Yolo Wonder, Yolo Y | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | present | | |  | | --- | | Florida VR2, Ribatejo | | |  | | --- | | 9 [   ] | |
|  |  |  |  |
|  |  |  |  |
| |  | | --- | | **5.28** |  |  | | --- | | **(59)** | | |  | | --- | | **Resistance to *Potato Y virus* (PVY) - Pathotype 1.2 (PVY: 1.2)** | |  |  |
|  | |  | | --- | | absent | | |  | | --- | | Florida VR2, Yolo Wonder, Yolo Y | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | present | | |  | | --- | | Chouca, Serrano Criollo de Morelos 334 | | |  | | --- | | 9 [   ] | |
|  |  |  |  |
|  |  |  |  |
| |  | | --- | | **5.29** |  |  | | --- | | **(60)** | | |  | | --- | | **Resistance to *Phytophthora capsici* (Pc)** | |  |  |
|  | |  | | --- | | absent | | |  | | --- | | Yolo Wonder | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | present | | |  | | --- | | Chistera, Favolor, Phyo 636, Solario | | |  | | --- | | 9 [   ] | |
|  |  |  |  |
|  |  |  |  |
| |  | | --- | | **5.30** |  |  | | --- | | **(61)** | | |  | | --- | | **Resistance to *Cucumber mosaic virus*(CMV)** | |  |  |
|  | |  | | --- | | absent | | |  | | --- | | Yolo Wonder | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | present | | |  | | --- | | Alby, Ducato, Favolor | | |  | | --- | | 9 [   ] | |
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|  | Characteristics | Example Varieties | Note |
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| |  | | --- | | **5.31** |  |  | | --- | | **(62)** | | |  | | --- | | **Resistance to *Tomato spotted wilt virus* Pathotype 0 (TSWV: 0)** | |  |  |
|  | |  | | --- | | absent | | |  | | --- | | Yolo Wonder | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | present | | |  | | --- | | Galileo, Jackal, Jackpot, Piamonte | | |  | | --- | | 9 [   ] | |
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| |  | | --- | | **5.32** |  |  | | --- | | **(63)** | | |  | | --- | | **Resistance to *Xanthomonas* spp (ex *Xanthomonas campestris* pv. *vesicatoria*)  (X spp (ex Xcv)) - Pathotype 1** | |  |  |
|  | |  | | --- | | absent | | |  | | --- | | Yolo Wonder | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | present | | |  | | --- | | Filidor, San Marco | | |  | | --- | | 9 [   ] | |
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| |  | | --- | | **5.33** |  |  | | --- | | **(64)** | | |  | | --- | | **Resistance to *Xanthomonas* spp (ex *Xanthomonas campestris* pv. *vesicatoria*)  (X spp (ex Xcv)) - Pathotype 2** | |  |  |
|  | |  | | --- | | absent | | |  | | --- | | Yolo Wonder | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | present | | |  | | --- | | Filidor, San Marco | | |  | | --- | | 9 [   ] | |
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| |  | | --- | | **5.34** |  |  | | --- | | **(65)** | | |  | | --- | | **Resistance to *Xanthomonas* spp (ex *Xanthomonas campestris* pv. *vesicatoria*)  (X spp (ex Xcv)) - Pathotype 3** | |  |  |
|  | |  | | --- | | absent | | |  | | --- | | Yolo Wonder | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | present | | |  | | --- | | Filidor, San Marco | | |  | | --- | | 9 [   ] | |
|  |  |  |  |
|  |  |  |  |
| |  | | --- | | **5.35** |  |  | | --- | | **(66)** | | |  | | --- | | **Resistance to *Meloidogyne incognita*(Mi)** | |  |  |
|  | |  | | --- | | absent | | |  | | --- | | Tom4, Yolo Wonder | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | present | | |  | | --- | | Bastion, Capital, Kation, W4 | | |  | | --- | | 9 [   ] | |
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| |  |  |  | | --- | --- | --- | | TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: | |
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| |  |  | | --- | --- | | 6. | Similar varieties and differences from these varieties | | |  | | --- | | *Please use the following table and box for comments to provide information on how your candidate variety differs from the variety (or varieties) which, to the best of your knowledge, is (or are) most similar. This information may help the examination authority to conduct its examination of distinctness in a more efficient way.* | | | | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | |  | | --- | | Denomination(s) of variety(ies) similar to your candidate variety | | |  | | --- | | Characteristic(s) in which your candidate variety differs from the similar variety(ies) | | |  | | --- | | Describe the expression of the characteristic(s) for the **similar** variety(ies) | | |  | | --- | | Describe the expression of the characteristic(s) for **your** candidate variety | | | | | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | *Example* | |  | | --- | | *Fruit: length* | | |  | | --- | | *long* | | |  | | --- | | *very long* | | |  |  |  |  | |  |  |  |  | |  |  |  |  | | | |  | Comments: | |

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| |  |  |  | | --- | --- | --- | | TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: | |
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| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  | | --- | | #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 | | | | | |  | | --- | | Special conditions for the examination of the variety                Main use                - Strictly ornamental use                                               [   ]                - Vegetable use                                                             [   ]                - Rootstock                                                                    [   ] | | | | | | |  |  |  |  |  | |

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

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4. Harmores 2 CPVO project (http://www.cpvo.europa.eu/main/en/home/documents-and-publications/technical-projects-reports) [↑](#footnote-ref-4)
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8. Harmores 2 CPVO project (http://www.cpvo.europa.eu/main/en/home/documents-and-publications/technical-projects-reports) [↑](#footnote-ref-8)
9. GEVES; matref@geves.fr [↑](#footnote-ref-9)